# SURFACE-MODIFIED SEMICONDUCTIVE AND METALLIC NANOPARTICLES HAVING ENHANCED DISPERSIBILITY IN AQUEOUS MEDIA

## ABSTRACT OF THE DISCLOSURE

Water-dispersible nanoparticles are prepared by applying a coating of a multiply amphipathic dispersant to the surface of a hydrophobic nanoparticle comprised of a semiconductive or metallic material. The multiply amphipathic dispersant has two or more hydrophobic regions and two or more hydrophilic regions, and is typically polymeric. Preferred polymeric dispersants are comprised of (1) a hydrophobic backbone with hydrophilic branches, (2) a hydrophilic backbone with hydrophobic branches, or (3) a backbone that may be either hydrophobic or hydrophilic, and substituted with both hydrophilic and hydrophobic branches. Monodisperse populations of water-dispersible nanoparticles are also provided, as are conjugates of the water-dispersible nanoparticles with affinity molecules such as peptides, oligonucleotides, and the like.